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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/888,644

06/26/2001

Hajime Akimoto

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02/20/2004

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EXAMINER

NGUYEN, JENNIFER T

ART UNIT

PAPER NUMBER

2674

DATE MAILED: 02/20/2004

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/888,644

Applicant(s)

AKIMOTO ET AL.

Examiner

Jennifer T Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2001.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-26 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 11 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office action is responsive to amendment filed on 12/11/2003.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 8-10, 12, 13, 19, 20, 22, 23, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakamura et al. (U.S. Patent No. 6,411,273).

Regarding claim 1, referring to Figs. 1-9, Nakamura teaches an image display apparatus having a display unit (PNL) composed of a plurality of pixels and a control unit (105) for controlling the display unit, further comprising: a DA converter (10) for converting the digital display data into an analog image signal, wherein said DA converter (10) is composed of a first DA converter (41) and a second DA converter (42), a power consumption when said first DA converter (41) is operated being smaller than that when said second DA converter (42) is operated, wherein said DA converter operates either of said first DA converter and said second DA converter according to the instruction from said control unit (105), and outputs the converted analog image signal to said display unit, and wherein said display unit changes the number of the independent display pixels of said display unit according to the instruction from said control

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(105), and displays according to said analog image signal (from col. 35, line 30 to col. 37, line 24, from col. 39, line 4 to col. 40, line 15, and from col. 41, lines 44-62).

Regarding claims 8, 10, 12, 20, and 25, referring to Figs. 1-9, Nakamura teaches an image display apparatus having a display unit (PNL) composed of a plurality of pixels and a control unit (105) for controlling the display unit, further comprising: a DA converter (10) for converting the digital display data into an analog image signal, wherein said DA converter (10) is composed of a first DA converter (41) and a second DA converter (42), wherein the first DA converter and the second DA converter each convert the input signal into an analog image signal with different numbers of bits, respectively (from col. 35, line 30 to col. 37, line 24, from col. 39, line 4 to col. 40, line 15, and from col. 41, lines 44-62).

Regarding claims 9 and 22, referring to Figs. 1-9, Nakamura further teaches an image display apparatus having a display unit (PNL) composed of a plurality of pixels and a control unit (105) for controlling the display unit, further comprising: a DA converter (10) for converting the digital display data into an analog image signal, wherein said DA converter (10) is composed of a first DA converter (41) and a second DA converter (42), wherein the first DA converter and the second DA converter each convert the input signal into an analog image signal with different frame frequencies, respectively (from col. 35, line 30 to col. 37, line 24, from col. 39, line 4 to col. 40, line 15, and from col. 41, lines 44-62).

Regarding claims 13, 19, and 23, Nakajima further teaches either one of said first DA converter and said second DA converter converts digital data into an analog image signal in accordance with an instruction from said controller (24) (col. 2, lines 45-67 and col. 3, lines 1-14).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-4, 14, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (U.S. Patent No. 6,411,273) in view of Lin et al. (U.S. Patent No. 6,344,814).

Regarding claim 2, Nakamura differs from claim 2 in that he does not specifically teach a gate line shift register for controlling the scanning of the display unit is connected to said display unit. However, referring to Figs. 1-4, Lin teaches a gate line shift register (116, 118) for controlling the scanning of the display unit is connected to the display unit, the control unit (not shown) outputs the instruction to said gate line shift register, and the number of independent display pixels (204) of said display unit (202) is changed by the gate line shift register, and a image is displayed (from col. 2, line 14 to col. 3, line 34 and from col. 3, line 59 to col. 8, line 14). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the gate line shift register as taught by Lin in the system of Nakamura in order to reduce power consumption display mode by scanning simultaneously every two lines in the top and the bottom.

Regarding claims 3, 14, and 24, the combination of Nakamura and Lin teaches the control unit (105) gives an instruction to the DA converter and the gate line shift register according to a mode switch instruction (from col. 2, line 14 to col. 3, line 34 and from col. 3, line 59 to col. 8, line 14 of Lin).

Regarding claim 4, the combination of Nakamura and Lin teaches the mode switch instruction has a first mode for carrying out the conversion processing by said first DA converter and a second mode for carrying out the conversion processing by said second DA converter, a pixel of said display unit is arranged corresponding to the region enclosed by plural gate lines and plural signal lines arranged to intersect with the plural gate lines, the gate line shift register controls at least two gate lines of said plural gate lines at the same timing in said first mode, and said first DA converter outputs one converted analog image signal to at least two signal lines (from col. 2, line 14 to col. 3, line 34 and from col. 3, line 59 to col. 8, line 14 of Lin).

6. Claims 5-7 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (U.S. Patent No. 6,411,273) in view of Lin et al. (U.S. Patent No. 6,344,814) and further in view of Jeong (U.S. Patent No. 6,373,459).

Regarding claims 5, 7, 15, and 18, the combination of Nakamura and Lin differs from claims 5, 7, 15, and 18 in that it does not specifically teach two memories each having different capacity, wherein the two memories correspond to the first DA converter and the second DA converter, respectively. However, referring to Figs. 3 and 7, Jeong teaches two memories (C1, C2) each having different capacity, wherein the two memories correspond to the first converter (16a) and the second converter (16b), respectively (col. 5, lines 34-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the two memories as taught by Jeong in the system of the combination of Nakamura and Lin in order to decrease the power consumption of the display device.

Regarding claims 6, 16, and 17, the combination of Nakamura, Lin, and Jeong teaches the display unit, said DA converter, the gate line shift register, and the memory having small

capacity among the memories are arranged on the same substrate, and the memory with small capacity is formed by using polysilicon (from col. 34, line 8 to col. 35, line 29 of Nakamura).

7. Claims 11, 21, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (U.S. Patent No. 6,411,273) and Lin et al. (U.S. Patent No. 6,344,814) in view of Jeong (U.S. Patent No. 6,373,459) and further in view of Zavracky (U.S. Patent 6,552,704).

Regarding claims 11, 21, and 26, the combination of Nakamura, Lin, and Jeong differs from claims 11, 21, and 26 in that it does not specifically teach an illumination means for supplying light to said display unit, wherein the illumination means supplies light to said display unit in said second mode. However, Zavracky teaches an illumination means (1111) for supplying light to said display unit (1112), wherein the illumination means supplies light to said display unit in said second mode (Fig. 12A, from col. 10, line 56 to col. 11, line 22 of Zavracky). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the illumination means as taught by Zavracky in the system of the combination of Nakamura, Lin, and Jeong in order to reduce the system power consumption.

8. Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jennifer T. Nguyen** whose telephone number is **703-305-3225**. The examiner can normally be reached on Mon-Fri from 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard A Hjerpe** can be reach at **703-305-4709**.

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, DC. 20231

Or faxed to: 703-872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA, sixth-floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the Technology Center 2600 Customer Service Office whose telephone
number is 703-306-0377.

Jennifer T. Nguyen
02/17/2004


REGINA LIANG
PRIMARY EXAMINER